



**National  
Aeronautical  
Laboratory**

**Documentation Sheet**

**Document Classification**

RESTRICTED

**Title** : A COMPUTER PROGRAM FOR WEIGHT  
ESTIMATION OF PROPELLER DRIVEN  
GENERAL AVIATION AIRCRAFT

**Document No.**

PD CA 8901

**Date of Issue:**

NOVEMBER 1989

**Author(s)** : ANOOP JHARIA

**Contents** 26 pages

Text 15

Figs 5

Table 6

**Division** : CIVIL AVIATION UNIT

**No. of copies:** 50

**External  
participation** :

**NAL Project No.**

ID-8-115

**Sponsor** :

**Sponsor's Project No.**

**Approval** : HEAD, CIVIL AVIATION UNIT

**Remarks** :

**Keywords** : WEIGHT ESTIMATION, LIGHT TRANSPORT AIRCRAFT

**Abstract** : This document describes the predesign weight estimation method of an aircraft and a computer program for the calculation and summation of system and sub-system weight elements for subsonic civil aircraft. The method is based on the statistical analysis of historical weight data for the components of similar aircraft configurations. The correlations and correlating parameters for general aviation aircraft are presented.

The capabilities of the program for calculating the centre of gravity location evaluated from the calculated individual component weights and weight reduction due to use of composite materials and advanced light alloys are described in brief.

The program was used to estimate the weight of four existing transport aircraft which was found to be well within the acceptable limit. Finally the code was used to estimate the weight and c.g. of NAL's light transport aircraft.